

Active Debris Removal (ADR) System Architecture Analysis Tool (SAAT) Prototype for Orbital Debris Stabilization and Removal Architecture Development, Phase I

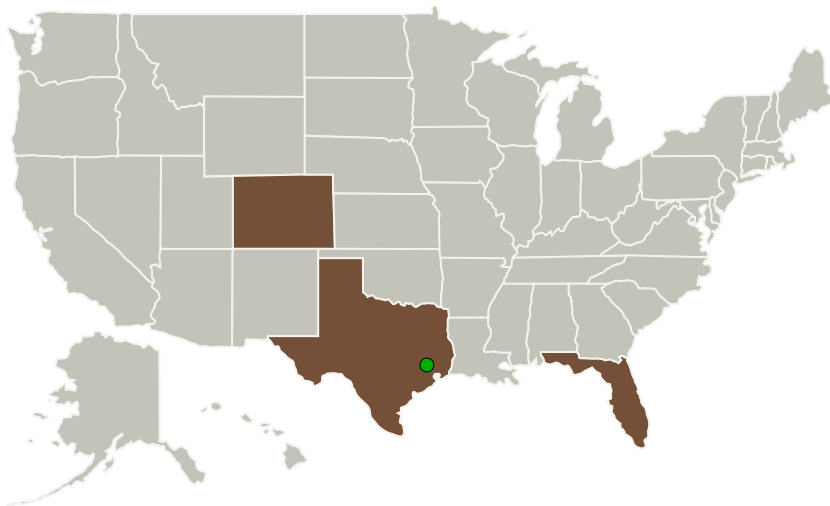
Completed Technology Project (2012 - 2013)



Project Introduction

It is critically important that a physics based ADR SAAT prototype be developed that can be refined and used across the community to study and analyze various remote (non-contact) orbital debris stabilization concepts and architectures prior to investing significant commercial or public funding into technology development, technology and system level demonstrations, and development and deployment of an Orbital Debris Stabilization/ADR system. Under this STTR, PA&S plans to develop a prototype Active Debris Removal System Architecture Analysis Tool (ADR SAAT) that we will use as the basis for the detailed architectural and business case analysis. The focus of this effort will be to selected and implement a core integrated architecture framework based on a SOA, adapt it as necessary, and develop the initial models, functions and interfaces necessary to develop the ADR SAAT prototype. The goal will be to provide the tool to NASA for community-wide development and use and which PA&S can adapt and use for detailed architectural analyses to define operating parameters, costs, and system level requirements. The intent of a Phase II effort would be to validate ADR SAAT with ground or flight experiments, continue to enhance its capabilities, and for detailed Debris Stabilization / Active Debris Removal Architecture analysis.

Primary U.S. Work Locations and Key Partners



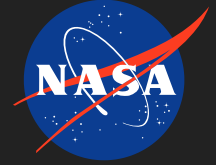
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Organizations Performing Work	Role	Type	Location
Poulos Air & Space, Inc.	Lead Organization	Industry Small Disadvantaged Business (SDB), Veteran-Owned Small Business (VOSB)	Redondo Beach, California
● Johnson Space Center(JSC)	Supporting Organization	NASA Center	Houston, Texas
Systems Engineering Program, USAF Academy	Supporting Organization	Academia	USAF, Colorado

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Poulos Air & Space, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

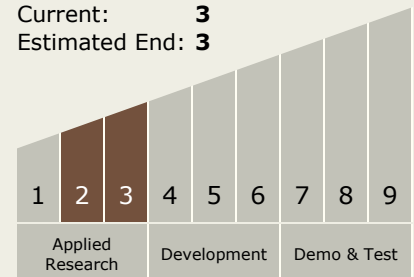
Carlos Torrez

Principal Investigator:

Dennis D Poulos

Technology Maturity (TRL)

Start: 2
Current: 3
Estimated End: 3



Primary U.S. Work Locations	
Colorado	Florida
Texas	

Project Transitions

▶ **February 2012:** Project Start

✓ **February 2013:** Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/137944>)

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Technology Areas

Primary:

- TX05 Communications, Navigation, and Orbital Debris Tracking and Characterization Systems
 - └ TX05.6 Networking and Ground Based Orbital Debris Tracking and Management
 - └ TX05.6.3 Orbital Debris Mitigation

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System